BUOYANCY DEVICES USING CONFORMAL CAVITIES

ABSTRACT

The invention is based on the inventor's discovery that the buoyant support of an immersed object will exceed the weight of the liquid it displaces when the liquid is displaced within a cavity that conforms to the horizontal shaping of the object and is only slightly larger in size. The invention calls for cavities that are made to be conformal with preexisting objects as well as for cavities and objects made to be conformal in combination. Such cavities can support a ship or floating platform on a relatively thin layer of water. A vertical support column comprises an outer tubular element, closed at the base, with inner walls that are closely spaced from a movable, inner flotation element of tubular shape, accessible from the top, the two being separated in use by a layer of liquid. Because of the floating principle and hydraulic distribution of a compressive load applied to the combination, increases in length provide increased load support without the corresponding increases in diameter usually required to resist buckling. The column is installed before addition of liquid, for convenience in handling, and may be used as an adjustable lift device by incremental additions of liquid.